

(50)

Spatial Resource Partitioning Exhibited by Endemic Agamid Species within Selected Forest Habitats of Sinharaja Forest Reserve**Mendis V.N.* , Jayawickrama H.S., Mahaulpatha W.A.D.**

Department of Zoology, University of Sri Jayewardenepura, Nugegoda, Sri Lanka
**vinurim@gmail.com*

Abstract

Over the years, lizard ecologists have placed importance on the study of habitat occupancy among agamid species by investigating resource partitioning and interspecific competition within selected habitats. Lizards sharing resources has been proposed as a driving factor for species coexistence and diversity within an ecological niche. Species mainly partition resources in three niche dimensions, namely, food (foraging), time (temporal) and space (microhabitat). The present study was aimed at determining the microhabitat utilization and spatial resource partitioning exhibited by four endemic agamid species namely, *Ceratophora aspera*, *Calotes liolepis*, *Lyriocephalus scutatus* and *Otocryptis weigmanni* within the unlogged and selectively logged forest habitats of Sinharaja Forest Reserve (SFR). Visual encounter survey and random quadrat sampling methods were used traversing 200 m transects and quadrats of 1×1 m² area during the study period from January 2020 to March 2021 spending 410 person-hours in the field, to determine the spatial resource partitioning of the species along three microhabitat variables: perch height, perch diameter and leaf litter depth. The spatial niche breadth for each agamid species was computed using the Shannon-Wiener measure of niche breadth (J') and Pianka index was used to determine the spatial niche overlap among the agamid species. Accordingly, the study revealed mean J' values narrower than 1.5 for all agamid species concerned, concluding them to become forest habitat specialists along the spatial resource dimension. Mean J' value of *L. scutatus* was high (0.74) in comparison to *O. weigmanni* (0.40), *C. liolepis* (0.37) and *C. aspera* (0.08). Furthermore, the Pianka index for niche overlap between the species indicated the highest spatial niche overlap between *C. liolepis* and *L. scutatus* (0.552) followed by spatial niche overlap shown between *C. aspera* and *C. liolepis* (0.550) and between *L. scutatus* and *O. weigmanni* (0.509). Field observations further showed that amidst the existing spatial resource competition, the species ensure coexistence via other resource dimensions. Habitat specialists are considered more susceptible to threats from habitat degradation and human influences compared to generalists. It is necessary to quantify the degree of overlap in the use of resources for the purpose of providing a biological and statistical meaning to determine when and where resources are used disproportionately to their availability and thereafter, enact timely conservation actions to ensure optimum resources to support fitness of the species. Hence, the results of the present study can be implied to support species conservation and in turn aid in better management of the natural world heritage site of SFR.

Keywords: Agamid, Sinharaja forest reserve, Microhabitat, Niche overlap, Conservation and management